REMARKS

Claims are pending in the application.

Rejection under 35 U.S.C. 103

Claims 4-12 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Murray (US 2002/0069937)* in view of *DE 43 27 040*. The undersigned verified by phone the correct citation of the document DE19950216 mentioned in the office action with the examiner: it turned out that examiner accidentally used the publication date 1995-02-16 instead of the document number *DE 43 27 040*.

Claim 15 has been amended to define the transportation step of the pieces of wood to the sawing station more clearly: after measuring the pieces of wood in step a), the pieces of wood are transported in step b) sequentially and continuously at a variable feeding velocity on a transport device from the measuring station to the sawing station; a position of each of the pieces of wood during transport on the transport device from the measuring station to the sawing station is scanned and input signals of the scanned position are send to a control unit. In step c) the pieces of wood are cut in the sawing station in a transverse direction transverse to the transport direction of the pieces of wood in the sawing station; the pieces of wood are stopped briefly to allow cutting in the transverse direction into at least two sections based on measured results taken in the step a). Input signals of the saw position are send to the control unit.

Based on the input signals of step b) and step c), the feeding velocity of the pieces of wood during transport according to step b) is recalculated and variably adjusted such that sequentially transported pieces of wood have a minimal spacing relative to one another and a second piece of wood that trails immediately a first piece of wood being cut in the sawing station is already transported into the sawing station while the first piece of wood is still being cut.

The invention is based on feedback control (input signals of steps b) and c) are being sent to the control unit and based on the input signals the feeding velocity is recalculated and adjusted) that enables a constant intervention in the transportation process so as to optimize / minimize the spacing between the pieces of wood and increase throughput of the device.

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The cited reference *Murray* discloses a method and an apparatus for bucksawing logs. The logs are moved past scanners 56, 57 for determining their length. As shown in Fig. 5 and explained in the description of Fig. 5, the two scanners 56, 57 are correlated with two conveyors 54, 55 that are positioned parallel to one another and aligned with additional conveyers 60, 62, respectively. After the logs have been measured by the scanners 56, 57, the logs are laterally moved by device 59 onto an another conveyer 14. This conveyor 14, as shown in Fig. 5, is arranged between the two transport devices 55, 60; 54, 62. The logs are alternatingly pushed from one or the other transport device 55, 60; 54, 62 onto the centrally arranged conveyer 14 transverse to a longitudinal direction of the logs. The conveyor 14 transports the logs to the feed rollers upstream of the sawing station.

A photocell 28 is arranged upstream of the rolls 18-21. As soon as the logs pass the photocell 28, the rolls 18-21 for transporting the logs are switched on. The rolls 20, 21 are pivoted by means of their arms 22, 23 or by only one arm 23 inwardly until the rolls 20, 21 engage the log. The photocell 29 downstream of the sawing station behind the cut-off saw 26 stops the drive action of the rolls 18 to 21 as soon as the log has reached a position for performing a sawing cut in the sawing station. The logs are thus transported in a stop-and-go fashion toward and through the sawing station. The conveyor 14 either operates continuously and feeds even though the feed rolls 18-21 may be stopped or it is stopped and started together with the feed rolls 18-21.

The examiner argues that the switch from constant velocity to no velocity constitutes a variably adjustable feed velocity wherein the velocity is dependent on the saw position as evidenced by the TEMPOSONIC positioner and encoder 81 and the desired pre-scanned cut position. Examiner has stated that even though *Murray* discloses that the purpose of the invention is to improve throughput by closing the gaps between the workpieces, there is no mention of how quickly the system operates and thus no mention of positioning the second piece in the sawing station while the first is still being cut. The examiner refers to *DE 43 27 040* as showing that a conveyor system similar to that of *Murray* is designed to maximize the throughput by a suitable time control by means of program control unit 38. In examiner's opinion the reference *DE 43 27 040* discloses that the distance between workpieces can be selected to be as small as desired and even zero.

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Combining the teaching of adjustable distance between the workpieces in accordance with *DE 43 27 040* with the "variable speed" (on/off) transportation of *Murray* in examiner's opinion makes the instant invention obvious.

Applicant disagrees. A significant difference between the method of *Murray* and the present invention resides in that in accordance with the inventive solution a continuous or uninterrupted transport of workpieces to the sawing station is realized. In the method according to *Murray* such a continuous or uninterrupted transport of the workpieces is not possible because the feed rolls 20, 21 would not allow such a method. Once the feed rolls 20, 21 have transported a log 12, at least one feed roll 20, 21 must be pivoted away so that the trailing log can move into the area between the two rolls. Subsequently, the feed roll that has been pivoted away must be returned so that it engages the next log to be transported (see Figures 1, 2, 3 and 4; related description in paragraph 0038). As a result of this pivot movement of the feed roll, a continuous transport or feeding of the logs to the sawing station is impossible.

Moreover, when the stop-and-go synchronization of the conveyor 14 and the feed rolls 18-21 is realized as suggested by the examiner for "variable speed" feeding, there is certainly no continuous transportation to the sawing station since the conveyor 14 is stopped as the log in the sawing station is being cut. Also, the stop-and-go synchronization keeps the distance between the leading and trailing ends of the logs constant and does not allow for minimizing the spacing between the logs. The synchronization also prevents that the trailing log is already transported into the sawing station while the first log is still being cut, especially because the trailing log can be received in the feed rolls only once the leading log has been released from the feed rolls and the pivoting action of the feed rolls as described above has been carried out.

DE 43 27 040 discloses in col. 6, line 23ff, the following (translated by the undersigned whose is fluent in German and English):

"The above described interaction of the elements of the conveying device 10 is now being repeated.

*By means of a **suitable time control** of the various conveying components by means of the program control device 38 it can be achieved that the distance in the transport direction between the trailing ends 131 of the temporally leading boards to the*

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leading ends 130 of the following boards can be adjusted to be as small as desired, in an extreme case even zero."

This reference discloses a program control device 38 that is only schematically indicated and described; col. 4, lines 23-27, reads in translation as follows (text translated by the undersigned whose is fluent in German and English):

"For controlling all components of the conveying device 10 a program control device 38, illustrated only very schematically in Fig. 2, is provided whose inner construction and external wiring are not shown so as not to clutter the drawing."

The control device is referenced once more in col. 5, lines 56-60 (text translated by the undersigned whose is fluent in German and English):

"The first and the second holding-down rolls 30a, 30b are no longer in engagement with board 13b at this time and have already been pivoted upwardly by means of the program control device 38, as indicated by arrows 33'."

The undersigned herewith certifies that the above translations are true and accurate.

This reference only teaches that by a suitable time control of the various components of the conveying system by means of the control unit 38 it can be achieved that the spacing between the trailing ends 131 of the workpieces transported in the device can be adjusted to be as small as possible relative to the leading ends 130 of the workpieces. However, it is decisive to note in this connection that in this reference a constant (unvaried) transport velocity of the workpieces following one another is used; this is evidenced by col. 5, lines 15ff (text translated by the undersigned whose is fluent in German and English and certifies that this translation is true and accurate):

"As shown in Fig. 3, the board 13b thus moves to the right until it hits the stop 36. It should be noted in this context that the stop 36 is not a requirement. It can be expediently provided in order to enable the previously transported board 13a to be completely moved out of the device 50 but this is not a must. The stop 36 can also perform the function of a sensor in that it detects that the board 13b has now reached the position illustrated in Fig. 3 in which the leading end 130b has just now left the belt conveyor 25c.

During the section of the working cycle of the conveying device 10 described so far the longitudinal conveyor 11 was at an elevated position according to a first working position. The corresponding height is indicated in Fig. 3 at h_1.

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As soon as the board 13b has reached the position on the longitudinal conveyor 11 which position is shown in Fig. 3, the longitudinal conveyor 11 is moved from the working position at h_1 to a second higher position where the height above the foundation 29 is now h_2 as shown in Fig. 4."

According to this disclosure, the spacing of the pieces of wood can be detected by sensors. The sensor detects that the piece of wood 13b has reached the position illustrated in Fig. 3 in which the leading end 130b has just left the third conveyor 25c. The sensor does not provide a governing or adjusting action of the transport velocity and no adjustment or decrease of the spacing between the pieces of wood is provided. The sensor or stop 36 is provided only as an indicator that a certain position has been reached and that the conveyor 11 should be lifted to the elevated position so that the board can be transported between the rollers. No recalculation or speed adjustment is provided.

The sequence of steps in this method is fixedly set within the program, for example, by means of a sequence control, and timing devices determine when the next action is to be triggered. This is similar to a washing machine where the selection of a laundry program on the dial causes in accordance with a fixed timing schedule certain actions to be triggered after a certain time has elapsed (washing, rinsing, spinning). The selection of a laundry program can change the duration of each laundry step, i.e., the time to elapse before the next step is triggered, but the selected program sets off a fixed course of action as the sequence in *DE 43 27 040* (see lines 23-24 of col. 6; translation provided above).

Accordingly, the time control of *DE 43 27 040* enables that the individual elements of the conveying system are triggered in slower or faster sequence, but this is not done in response to signals being received but is done beforehand by selecting a particular time control (time program). Once the program is selected, the boards are transported in the same way at the same speed and with the same triggering sequence. Once the time program control has been selected, a given program sequence without any change or adjustment of the transportation speed is followed.

In col. 6, lines 30 and 31, of this reference it is mentioned that the spacing of workpieces can be set in an extreme situation to zero. In the method disclosed in the cited reference a continuous transport of the pieces of wood is thus realized without any adjustment during transport (at zero distance between the boards cross-cutting at a sawing

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station is impossible unless stop and go of the feed system is realized).

Zero spacing and continuous transport as disclosed in *DE 43 27 040* cannot be used in the method of the present invention: within the sawing station the pieces of wood during the sawing process must stand still, i.e., they cannot be transported farther. If the method according to *DE 43 27 040* were used, the currently transported pieces of wood would collide at the sawing station 16 with the piece of wood momentarily being sawed. This would cause malfunction and shut-down of the device.

DE 43 27 040 does not describe a variable feedback control of the feeding velocity of the trailing pieces of wood but a constant transport speed. The time control enables to select different triggering sequences of elements of the conveying device so that over the length of the transportation path the elements react earlier for reducing the spacing between the boards, but the feeding velocity is not varied and not controlled by feedback.

The feedback control that is employed according to the invention is advantageous because the pieces of wood that are being transported require different cutting actions in the sawing station. For example, a first board has three flaws that are to be removed and this requires six cuts; a second board has only one flaw and requires only two cuts; a third board has two flaws and requires four cuts. Depending on the number of cuts, each board has a different residence time in the sawing station. When a constant feeding speed is used as taught in *DE 43 27 040*, it is impossible to account for the different residence times in the sawing station other than selecting the spacing between the boards to be so large that a maximum number of cuts conceivable for a board could be performed without the boards colliding. It is impossible to reduce or optimize the spacing between the boards and throughput is low because the throughput is dictated by the longest possible processing time in the sawing station.

Murray teaches only a continuous feeding speed of the conveyor or a stop-and-go action synchronized with the feed rolls; in the first situation the spacing between the logs must be selected to be so great that trailing log is safely spaced from the leading log to allow for a maximum duration of a sawing process in the sawing station; in the second situation, there is no continuous feeding to the sawing station and the device throughput is low.

The present invention enables an optimization of the throughput by recalculating

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and readjusting the feeding speed so that the boards can be transported continuously and without interruption with a minimal spacing between the boards.

Therefore, the combination of the two cited references cannot make obvious the method as claimed in claim 15.

In regard to claims 4 and 5, it is respectfully submitted that no continuous recalculation is done in *Murray*; the examiner states that this is done based on the speed of the feed rolls 18, 19, 20, 21. To calculate means to determine by mathematical processes (see attached copy of *Merriam-Webster's Online Dictionary*) - no mathematical process is carried out in *Murray* in regard to the feed speed of the feed rolls. The feed rolls are either on or off and no mention is made that the feeding speed is recalculated.

Reconsideration and withdrawal of the rejection of the claims under 35 USC 103 are respectfully requested.

CONCLUSION

In view of the foregoing, it is submitted that this application is now in condition for allowance and such allowance is respectfully solicited.

Should the Examiner have any further objections or suggestions, the undersigned would appreciate a phone call or **e-mail** from the examiner to discuss appropriate amendments to place the application into condition for allowance.

Authorization is herewith given to charge any fees or any shortages in any fees required during prosecution of this application and not paid by other means to Patent and Trademark Office deposit account 50-1199.

Respectfully submitted on <u>October 14, 2008,</u>

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10/14/08: Amd for Ser. No. 10/709,344 - Inventor(s): Reinbold et al. - Filing Date: 4/29/2004

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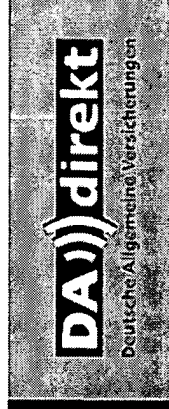
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calculate

One entry found.

Main Entry: **cal·cu·late** ◀))
Pronunciation: \ˈkal-kyə-ˌlāt\
Function: *verb*
Inflected Form(s): **cal·cu·lat·ed; cal·cu·lat·ing**
Etymology: Latin *calculatus*, past participle of *calculare*, from *calculus* pebble (used in reckoning), perhaps irregular diminutive of *calc-, calx* lime — more at CHALK
Date: 1570

transitive verb

1 a : to determine by mathematical processes <*calculate* the rate of acceleration>
b : to reckon by exercise of practical judgment : ESTIMATE <*calculate* the likelihood of success> **c :** to solve or probe the meaning of : FIGURE OUT <trying to *calculate* his expression — Hugh MacLennan>
2 : to design or adapt for a purpose <he carefully *calculated* the timing of his arrival for maximum impact>
3 a : to judge to be true or probable **b :** INTEND <I *calculate* to do it or perish in

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calculate   **GO**

calculate - Definition from the Merriam-Webster Online Dictionary

the attempt — Mark Twain>

intransitive verb

1 a : to make a calculation **b :** to forecast consequences

2 : COUNT , RELY

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